# ABSTRACT

The present invention is a method and apparatus for testing random numbers generated by a random number generator in real time. As random numbers are generated, overlapping blocks of $k$ bits undergo an exponential count operation one at a time, in which the count operation is performed by dropping the leftmost bit from the previous $k$ bit block and appending a new random bit to the right of it to form a new $k$ bit block, thus maintaining the size of the block. The binary value of this $k$ bit block is used for performing the accumulator selection during the overlapping count operation. All of the outputs of the exponential averaging are compared to a predetermined acceptance range to determine whether the bits generated by the random number generator is sufficiently random.